A New View of Command and Control Systems

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INTRODUCTION

No command and control systems will ever remove the uncertainty associated with the battlefield; at times these systems introduce more friction than they were designed to reduce. More systems require more operators, more communications bandwidth, and more organizational overhead. Command and control systems are moving the Marine Corps away from maneuver warfare because these systems lead to explicit control, centralization, and the mitigation of creativity.

BACKGROUND

Marine Corps Doctrinal Publication 6 describes command and control as "the means by which a commander recognizes what needs to be done and sees to it that appropriate actions are taken." [1] Command and control is composed of three elements: people, information, and the command and control support structure.[2] Command and control systems are part of the support structure. Most systems are designed with the intent of assembling information into a common tactical picture in order to allow a commander to make a decision, get feedback as the order is carried out, and then evaluate the results.

The Marine Corps' philosophy of maneuver warfare is characterized by decentralized command and control and rapid decisionmaking. However, the advanced command and control systems used today allow commanders at all levels to see much more information about the battlefield than before.[3] This leads to a tendency to exert more control over maneuver units, which slows the operational tempo as the common picture is assimilated. The following example along with Figure 1 illustrates the type of control possible with modern command and control systems and the negative effects that it can have.

Passing through a crowded marketplace on a security patrol a squad leader is distracted from his surroundings when his personal data assistant (PDA) beeps. Looking down, he sees a message from his company combat operations center (COC) to speed up his patrol because he is falling behind the timeline associated with his patrol route. He was told that the battalion COC wants the patrol to finish the published route on schedule or else the patrol will be recorded as late. Speeding up his patrol, the squad leader is interrupted by his PDA again when the COC tells him to find the current market prices for charcoal and motor oil. Preoccupied with answering these messages, the squad leader walks by a key insurgent leader

eating at a small café in the marketplace and loses an opportunity to capture the man and his associates.

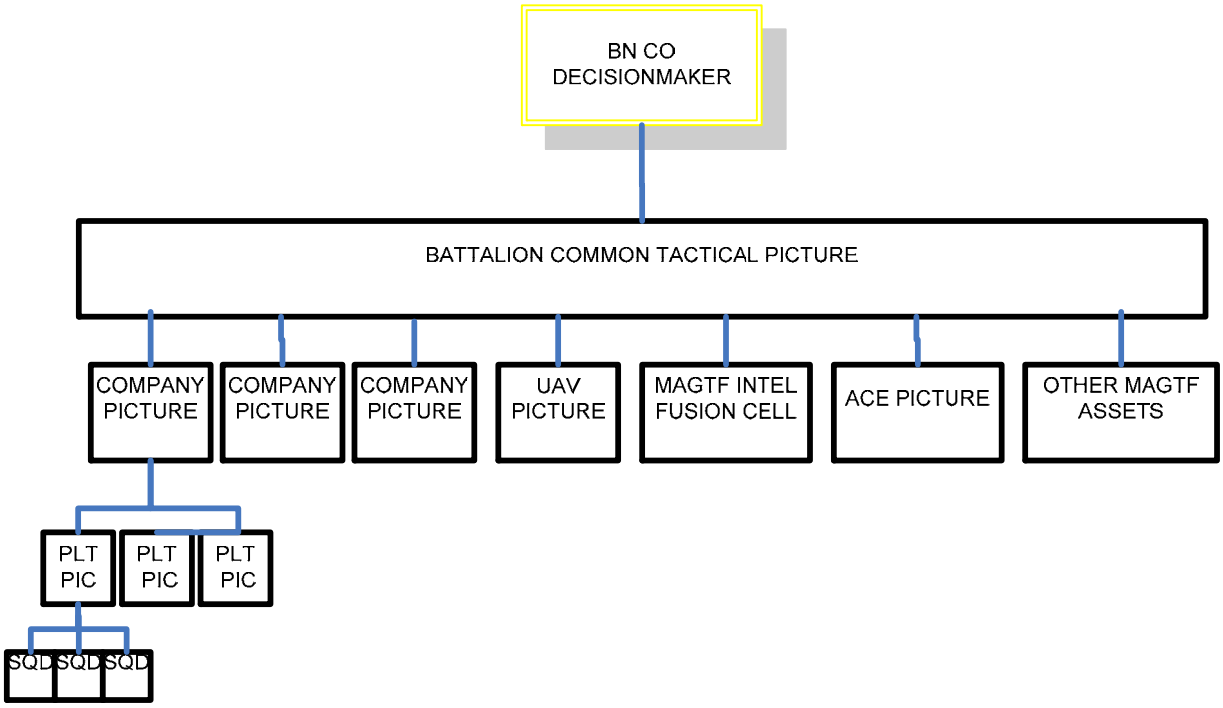

Figure 1: The current employment of command and control systems at the infantry battalion level. They are utilized to assemble the common tactical picture from subordinate and adjacent elements for decisionmaking at the battalion level.

EXPLICIT AND IMPLICIT COMMUNICATION

Fundamentally two types of communication exist, explicit and implicit. Explicit communication involves telling someone specifically what to do in a step-by-step approach. Implicit communication relies upon the knowledge, understanding, and mutual trust that two individuals have in one another. Communicating implicitly conveys much more information in a shorter period of time than explicit communication. However,

implicit communication requires commanders and subordinates to invest a great deal of time and effort in developing a close relationship. The Marine Corps' maneuver warfare philosophy is based upon implicit communication.[4]

Nevertheless, the current systems based approach of command and control encourages explicit communication with the belief that if a concept is not briefed, the subordinate must not understand that aspect of the task. The systems remove the initiative of the subordinate leaders as their progress is monitored on widescreen monitors. Instead of being accepted, delays and deviations from planned routes and overlays generate more questions from higher levels of command and slow tempo as the subordinate takes his mind off of the tactical situation to answer questions. Opponents will justify the myriad of reports, overlays, and documentations as critical to the commander's decisionmaking process. Yet too many reports and overlays inhibit the fundamental trust and understanding that a commander should have with his subordinates.

Rather than being utilized simply for the creation of overlays for senior leader's decisions, modern command and control systems can be used for implicit communication if they are used as a tool for building a shared situational awareness.

In keeping with maneuver warfare, the *Marine Corps Vision and Strategy 2025* states:

> The emerging operational environment requires that we increase the shared situational awareness of small unit leaders to support decentralized decision-making. This investment not only enhances the capabilities of these small units, but also increases the quality and quantity of shared situational awareness across echelons. In environments where human intelligence and tactical information reign supreme, we must acquire and convey information rapidly and accurately to facilitate timely decisionmaking [5]

These systems can implicitly build the commander's situational awareness and cut down on radio traffic.

CENTRALIZATION

Throughout history, advances in communications and technology have pushed commanders toward centralized control with the misconception that they see the bigger picture and, thus, are better placed to make tactical decisions. This belief is in opposition with the tenets of maneuver warfare. General Helmut van Moltke, a famous Prussian military strategist, commented in 1892 that "no commander is less fortunate than he

who operates with a telegraph wire stuck into his back." [6] Modern systems enable commanders to control their subordinates not just through wire, but through satellite datalinks and numerous other devices from farther away than ever before. For example, the US Central Command is headquartered not in the Middle East, but in Tampa, Florida.

A recent example of how high technology command and control systems can lead to centralization can be seen in the 2006 Israel-Lebanon Conflict. Matt Matthews, a professor at the Army War College, writes that the Israeli high command employed a doctrine of systemic operational design (SOD) that relied upon "superior knowledge and command and control capabilities" [7] to direct their armed forces in action against Hezbollah. Matthews continues, "the Israeli Defense Force (IDF) attempted to orchestrate the strategic cognitive collapse of Hezbollah through the use of air power and precision firepower-based operations. When this failed, the IDF sought to produce the same effects by using its ground forces to conduct limited raids and probes into southern Lebanon." [8] Almost all of the operational decisions in the campaign were made at the IDF headquarters in Tel Aviv detailing timelines, targets, and troop sizes to the ground brigade commanders.[9] Matthews further writes, "According to an Israeli source, out of 11 IDF brigade commanders, only one

ever crossed the border into Lebanon by war's end." [10] Some opponents herald the technological advances of command and control systems that put immense amounts of information at the commander's fingertips, but neglect to mention that a dependence on these systems leaves a commander tied to his command post and leading his troops in the field.

The Israeli leadership in Tel Aviv used their high-technology command and control systems as a basis for making and evaluating their operational and tactical level decisions. However, this centralization led to numerous problems with information flow. Matthews writes of one instance:

> IDF monitors picked up several reports of contact along the electronic border fence near milepost 105. Shortly after these movement reports, an IDF reserve patrol reported 20 Hezbollah fighters near the same location. Amazingly, it appears this information never filtered down to the reserve soldiers preparing to conduct the day patrol.[11]

The information about the Hezbollah fighters made its way to the commanders in Tel Aviv, but it was never relayed to the soldiers on the ground. Proponents for advanced command and control systems neglect to mention that the same detailed picture that is assembled for a commander may cut his subordinates completely out of the information loop because they do not have access to

the same resources. The problems that Israel had in their last conflict clearly indicate the dangers of centralization that are inherent in command and control systems.

CREATIVITY

One of the fundamental concepts behind maneuver warfare is that it capitalizes on the creativity of individual decisionmakers at the lowest levels. The *Marine Corps Vision and Strategy 2025* states, "We believe that the human dimension of war is the most critical element, and that boldness, creativity, intelligence, and the warrior spirit are prime attributes." [12] These attributes allow Marines to seize fleeting opportunities and take advantage of enemy weaknesses. Unfortunately, computerized command and control systems cannot adequately capture and convey this creativity and spirit.

Some opponents will argue that command and control systems such as Command and Control Personal Computer can be utilized to produce excellent graphics and overlays for an operation. While these digital measures can accurately convey a concept of operations, they cannot capture concepts central to maneuver warfare like commander's intent. Upon first contact with the enemy, these carefully prepared computerized plans no longer accurately reflect the intentions of subordinate commanders and cannot be quickly adjusted.

For example, a squad leader getting ready for a patrol has to submit a patrol overlay graphic to his company and then to the battalion in order for them to be able to track his movements. During the course of the patrol, if the situation changes and the squad leader deviates from his intended route, more often than not, the first question asked is why the squad leader deviated from his route. The more important question of how can the organization support the squad leader is never asked. This takes the initiative away from the squad leader because he is restricted by lines on an electronic map and the amount of explanation required to change the lines.

A better use for command and control systems is to present a picture to the same squad leader of the assets that are available for him to utilize. The squad leader can see the aircraft, mounted patrols, and other assets that are in the area that he can synergistically combine to accomplish his mission. Rather than enabling senior commanders to control their subordinates, the system should be used in reverse, allowing decisionmakers at the lowest levels access to resources and a picture they would not have had under the current paradigm. The following example along with Figure 2, illustrates how command and control systems can be employed to this effect.

A squad leader is patrolling through a crowded marketplace with his attention outwardly focused, sees a man whom he vaguely recognizes from the high value individual (HVI) posters around the company command post. He pulls out his PDA and asks for the company intelligence cell to send him the picture while he orders his squad to detain the HVI and his associates. He consults his PDA to pull a feed from an unmanned aerial system overhead to look for any insurgent forces enroute to the area. After the man is detained, his identity is confirmed using the biometric data obtained from the battalion's database. The squad leader then uses his radio to coordinate with an adjacent mounted patrol for a link up to transfer the detainees to their custody for transport. Alerted to the capture, the battalion COC ensures that the mounted patrol has movement priority out of the city. All of these actions were completed before the enemy had time to regroup and mount a rescue.

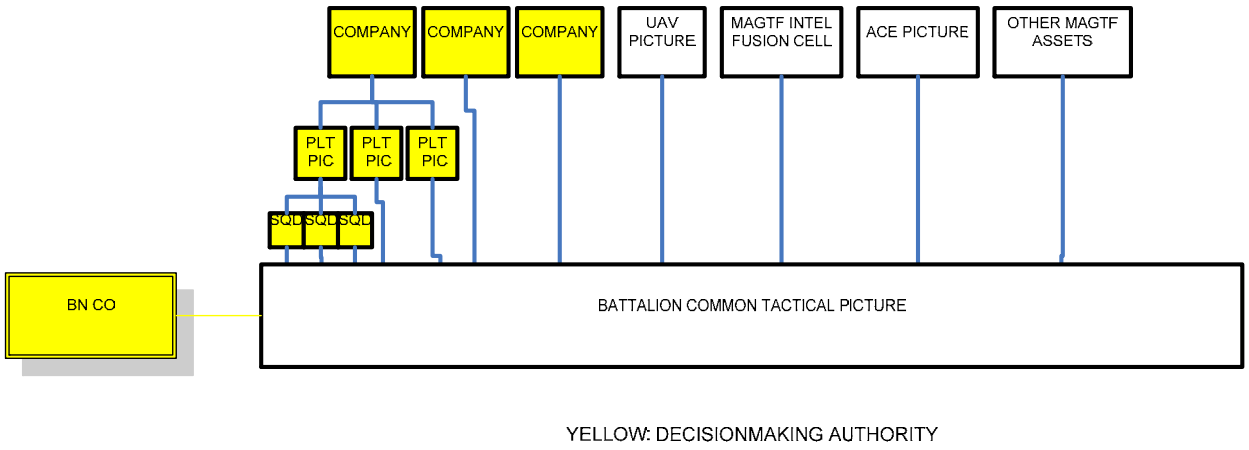

Figure 2: Proposed employment for command and control systems at the infantry battalion level where the common tactical picture is assembled for use by decisionmakers at all levels. Instead of directing action, the battalion commander and staff observe and facilitate resources and generate additional combat power.

CONCLUSION

Modern command and control systems can be a double-edged sword to the commander. The true benefits that these systems bring are the shared information, resources, and intelligence picture. Instead of enabling senior commanders to control subordinates, command and control systems should be used to facilitate maneuver warfare by empowering all decisionmakers. In keeping with the tenets of maneuver warfare, the goal of command and control systems employed in the Marine Corps should be to give leaders at the lowest levels access to all the resources that Marine air ground task force can bring to the fight.

WORD COUNT: 2038 (Excludes Captions on Figures)

ENDNOTES

[1] United States Marine Corps, *Marine Corps Doctrinal Publication 6, Command and Control* (Washington, D.C.: Department of the Navy, 1996), 37.

[2] USMC, *MCDP 6*, 48-51.

[3] Clarence A. Robinson Jr, "Advances Boost Tactical Nodes," *Signal Magazine*, June 2007, 50.

[4] USMC, *MCDP 6*, 109.

[5] United States Marine Corps, *Marine Corps Vision & Strategy* 2025 (Washington, D.C.: Department of the Navy, 2008), 39.

[6] Martin Van Crevald, *Command in War* (Cambridge, MA: Harvard University Press, 1985), 146.

[7] Matt M. Matthews, *We Were Caught Unprepared: The 2006 Hezbollah-Israeli War* (Fort Leavenworth, KS: Combat Studies Institute Press, 2008), 24.

[8] Matthews, *We Were Caught Unprepared,* 61.

[9] Matthews, *We Were Caught Unprepared,* 47.

[10] Matthews, *We Were Caught Unprepared,* 55.

[11] Matthews, *We Were Caught Unprepared,* 33.

[12] USMC, *Vision & Strategy 2025*, 10.

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